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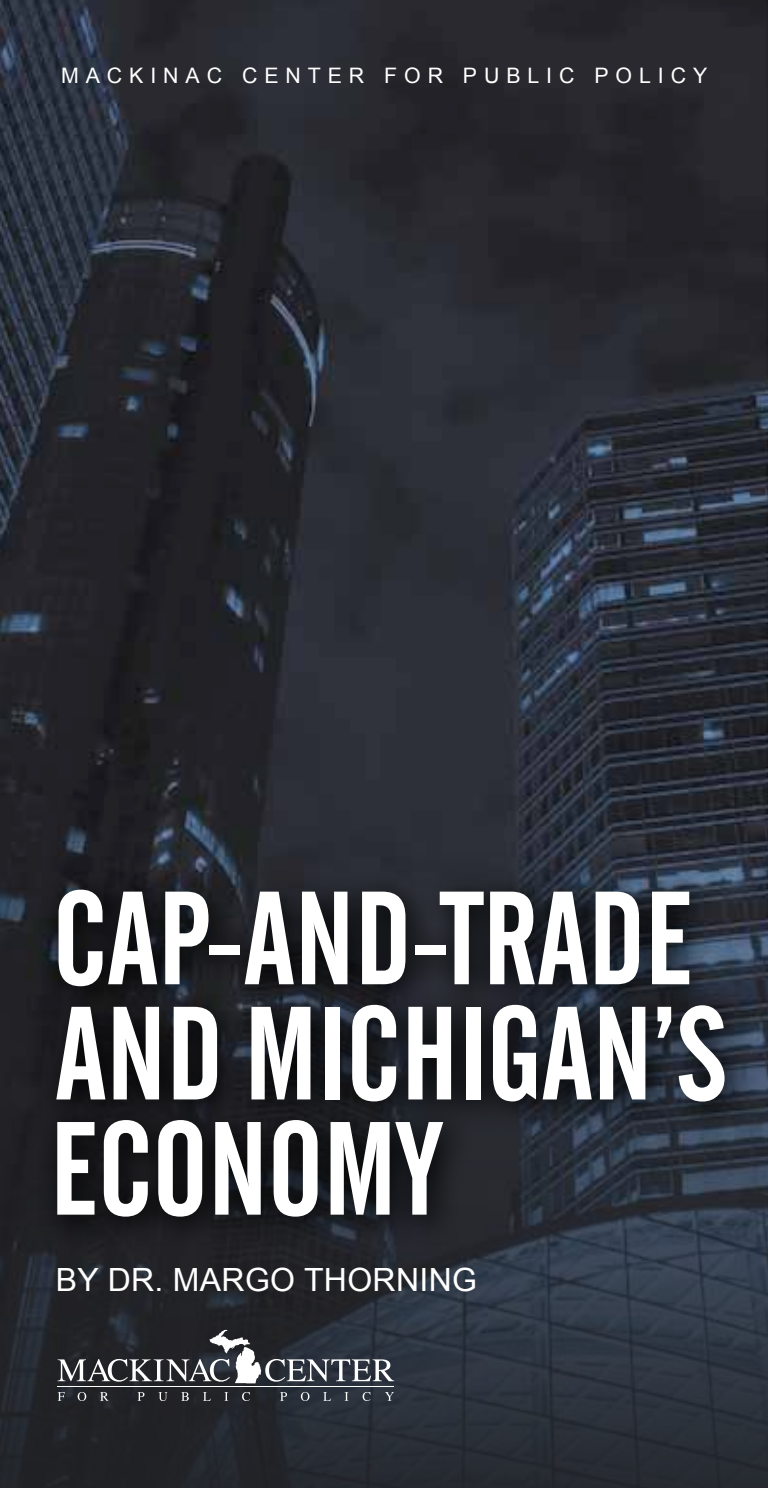

CAP-AND-TRADE AND MICHIGAN'S ECONOMY

BY DR. MARGO THORNING

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Cap-and-Trade and Michigan's Economy

by Dr. Margo Thorning

(Editor's note: This is an edited transcript of a speech from the Mackinac Center's April 29, 2010, Issues & Ideas Forum.)

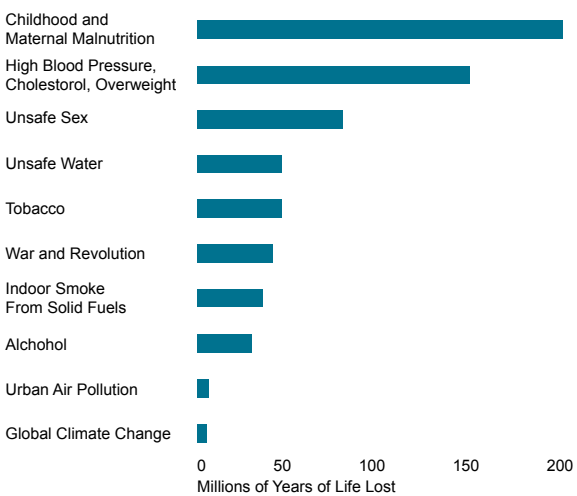
Thanks to the Mackinac Center for letting me come and share some thoughts with you. I have to warn you, as an economist, I make accountants look like the life of the party. So bear with me, because we do tend to try to tell our story with numbers as well as pictures.

Climate change is an issue being discussed in Washington; so is climate change policy. One of the things I like to do to help people understand this issue is put it in a global perspective. This chart I just put up [see next page] was prepared by President Obama's science advisor, Dr. John Holdren. Dr. Holdren published this table in a science magazine article last year, and I think it's important when we think about climate change to think about where it falls in the panoply of socio-economic issues that we as a society need to be concerned with.

The thing that contributed most to global mortality in the year 2000 (the latest year available from this World Bank data that Dr. Holdren used), the greatest loss of life in terms of millions of years of life lost, is childhood and maternal malnutrition. And this is global; this is not just the United States. Second is high blood pressure, cholesterol and being overweight; unsafe sex; unsafe water; tobacco use; war and

revolution. Note this one: indoor smoke from solid fuels. The International Energy Agency says that 1.5 million women and children die every year around the globe because they cook over dung fires — biofuel fires. They don't have electricity. We have 6 billion people, roughly, on this planet, and 2 billion of those people have no electricity. So in terms of years of life lost, the inability to cook with electricity or with propane is a very substantial contributor to loss of life. The very last item at the bottom is climate change.

Contributors to Global Mortality in 2000



Source: John P. Holdren, "Science and Technology for Sustainable Well-Being," Science, May 2009.

So the latest data that we have available show that there are some really serious issues contributing to huge loss of life and poor living standards, and that's maternal and childhood malnutrition. So when we think about climate change and we think about how many resources we want to put into addressing the potential threat of climate change, compared to other threats to life, I think we need to try to strike a balance.

Now the reason I guess I was asked to talk about climate change policy is that the Obama administration and

Congress are pursuing bills that would mandate a cap-and-trade system* and mandate reductions in greenhouse gas emissions here in the United States.

Last year, the American Council for Capital Formation, in conjunction with the National Association of Manufacturers, sponsored a piece of research on a macroeconomic analysis of the impact of the Waxman-Markey bill† on the United States as a whole, and on all the 50 states including Michigan.

Let's just take a quick look at the challenge that the Waxman-Markey bill would impose on the U.S. economy. The reason this analysis is still relevant, even though it was last year's bill, is that the new bill being discussed and worked on by Sens. Kerry and Lieberman‡ has the same emission reduction targets — at least it appears to. We haven't seen the bill yet, but we hear the reduction targets are just the same. So the baseline forecast for emissions in the United States, absent Waxman-Markey, absent further measures to reduce greenhouse gases, shows emissions pretty well flat between 2012, when the bill would start, and out to 2030. This is the Department of Energy's baseline forecast.

The Waxman-Markey bill requires the United States to curb CO2 emissions by 42 percent by the year 2030.

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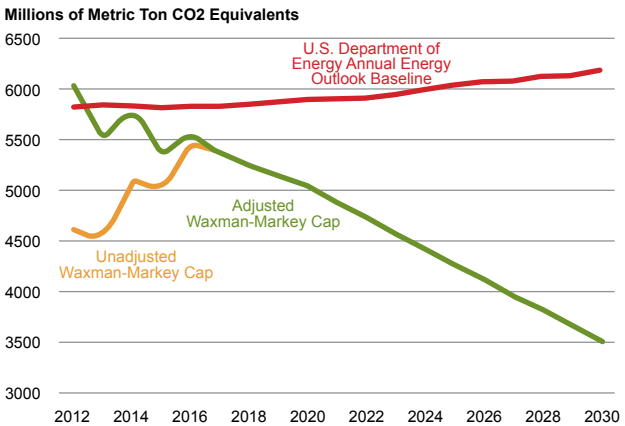
* The cap-and-trade approach to reducing greenhouse gas emissions sets steadily decreasing annual levels of emissions. It requires companies to purchase emission allowances for each ton of CO2 that they emit each year. The term "trade" refers to the fact that companies that have reduced emissions can sell or "trade" their allowances to companies that need them.

† The American Clean Energy and Security Act of 2009 (H.R. 2454), sponsored by Congressmen Henry Waxman (D-CA) and Edward Markey (D-MA), requires that greenhouse gas emissions decline to 42 percent below 2005 levels by 2030 and 83 percent below by 2050. It contains provisions requiring energy efficiency and more use of renewable energy.

‡ The American Power Act of 2010, introduced as a discussion draft by Sens. John Kerry (D-MA) and Joe Lieberman (I-CT), requires that greenhouse gas emissions decline to 42 percent below 2005 levels by 2030 and 83 percent below by 2050. It does not have the renewable energy or energy efficiency provisions found in H.R. 2454.

By 2050, the bill requires an 80 percent reduction in greenhouse gas emissions — so virtual decarbonization of the U.S. economy by 2050.

Total Energy-Sector CO2 Emissions: Baseline Forecast and Waxman-Markey Bill



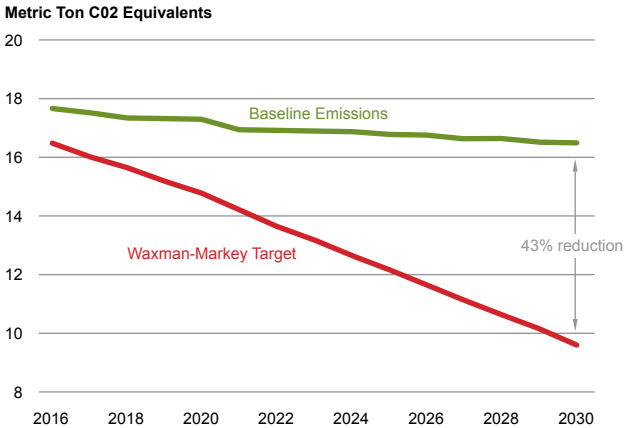
The adjusted Waxman-Markey cap, which appears as a green curve, reflects the bill's projected actual effect on carbon emissions given that some emission sources would not be fully subject to the cap until 2017.

Now, that is all very vague and abstract, but let's look at it on a personal basis.

Per-person emissions here in the United States are now running at about 18 tons per year. And that probably sounds vague, too, but if you're driving a midsize car and you're driving 10,500 miles a year, you have emitted 5 tons of CO2. So that's 5 of your 18 tons, on average. The 18 tons counts the emissions associated with your work, your travel, your living at home — so we're emitting about 18 tons per person.

The Waxman-Markey bill would require us to get our personal per-capita emissions down to about 10 tons in the next 18 years. So you can imagine that would take pretty important and significant changes in how industry produces goods and services, where you live, what kind of car you drive, how far you drive and so forth, in order to get per-capita emissions down almost by half.

Per-Capita Energy-Sector CO2 Emissions: Baseline Forecast and Waxman-Markey Bill



Now as I mentioned, we did an analysis using the National Energy Modeling System, which is the U.S. Department of Energy's own macroeconomic model, and it's the one that Congress has them use when Congress says, "Well, DOE, how much will this bill cost?" So we used the Department of Energy's own model, working with the Science Applications International Corporation, a consulting firm that maintains the model for the Department of Energy.

But we did the analysis with some constraints on how quickly new technology can actually be put into place. We assumed on our low-cost case that we could build 25 new nuclear plants in the next 18 years. Our high-cost case assumed 10. We thought that was reasonable, because if you think about it, we haven't built a nuclear plant in the United States since 1978. Most of our nuclear engineers are either retired or about to retire. We only have one or two companies capable of building the equipment to produce electricity through nuclear energy. So we thought that was a reasonable constraint in terms of new technology that could produce electricity and do it without emitting CO2.

We also put some constraints on how quickly the technology called "carbon capture and storage" could be put into place. People are very hopeful that we will be able to develop the capability to burn coal at our utilities and capture and store the carbon, and to also do that at our gas-fired utilities. But right now, that technology is not commercial. So we made the leap of faith that between now and 2030, we'd be able to put either 30 one-gigawatt plants in or 60, depending on the high-cost or low-cost. So there would be between 30 and 60 units of gas- and coal-fired carbon capture and storage.

Similarly, we made assumptions about how quickly renewable energy can be put into the system. We assume the addition of between eight and 15 gigawatts of solar and wind power every year, year after year. Given the difficulties of integrating renewable energy into the grid, we thought that was reasonable too.

So we've made other assumptions, which are spelled out on Page 13 of the full study, if you look at it on our website (www.accf.org/publications/109/accf-nam-study-of-the-economic-impa). But we were very upfront about that, because we wanted people to look at our analysis and question it, and say, "Well, you know, why is your number different from so-and-so's number?" or "What is the basis of this?" We've tried to be very clear about what the assumptions were, so all we did was tweak the Department of Energy's model to constrain the availability of some of the technologies that if they were available, would make it a lot cheaper to meet the emission reduction cuts.

I wanted to just share with you a few of the other model runs besides ours, and look at 2020 and 2030 results for the U.S. economy before we talk about Michigan. Under our low-cost case, we assume that companies would have to pay between $48 and $61 dollars to emit a ton of CO2

every year, because this is a cap-and-trade system, and to emit carbon you have to pay for the right to emit a ton of CO2. When you do that, it tends to raise energy prices, and it tends to slow the growth of gross domestic product.

In the year 2020, most of the allowances are still being given away, so the bill's not very costly using our modeling. And we show a loss of GDP of between 0.2 percent and 0.4 percent, and we actually show a job gain in the low-cost case of 10,000 jobs compared to the baseline forecast. In the high-cost case, we lose about 80,000 jobs in 2020. Remember, the reduction targets aren't very tight, and their allowances are being given away.

There are a few other model results I want to share with you. Charles River Associates, a private consulting firm, did a study for the National Black Chamber of Commerce, which showed a carbon price of around $30 a ton, almost 1 percent loss in GDP and almost 2 million fewer jobs. It's a different model, but it's still a macroeconomic model.

The Department of Energy of course was asked by Congress to do its own simulations of this bill. It ran seven different cases; I showed you just two of them, so you get a feel for the difference made when different assumptions are put into the model. The basic Energy Information Administration case, which is the one the media always picks up on, is the topline case. It shows a very small impact on GDP — a loss of 0.3 percent — and 81,000 fewer jobs. But that basic case assumes that we're building 75 new nuclear plants in the next 18 years. It assumes that carbon capture and storage is already available and commercial. And it assumes full use of international offsets — that is, when our companies pay China for emission reductions, we trust and assume they've actually been made.

So the EIA's basic case, which is the one that generally gets picked up in the press, shows pretty small impact. But their limited case, which has used really the same assumptions

we did — very small increase in nuclear; carbon capture and storage not available until 2025 or 2030; limited use of international offsets — shows a much higher loss of GDP. So I thought it'd be interesting for you to see how our own Department of Energy, depending on which of the simulations you choose to look at — which ones you believe are more reflective of reality — shows significant impact even in 2020.

The Congressional Budget Office also shows a loss of GDP, ranging from 0.2 percent to 0.7 percent. They don't do their own modeling there, but they draw on the analysis of private groups and other government agencies.

Summary of Key Macroeconomic Modeling Results in 2020 for the Waxman-Markey Bill

	U.S. Carbon Allowance Prices (Per Metric Ton in 2007 Dollars)	GDP Impact (Percentage Change from BAU)	Impact on Jobs (Change from BAU)
ACCF/NAM Low-Cost Case	$48	-0.2%	+10,000
ACCF/NAM HIgh-Cost Case	$61	-0.4%	-80,000
CRA/NBCC	$30	-0.8%	-1,800,000
EIA-NEMS Basic	$32	-0.3%	-81,480
EIA-NEMS Limited	$93	-0.7%	-355,210
CBO	$23	-0.2 to -0.7%	N/A

The graphic shows economic-impact estimates for the year 2020 from the American Council for Capital Formation and the National Association of Manufacturers (ACCF/NAM); Charles Rivers Associates and the National Black Chamber of Commerce (CRA/NBCC); the U.S. Energy Information Administration, using the National Energy Modeling System (EIA-NEMS); and the Congressional Budget Office (CBO). Figures in the second and third columns represent changes from "business as usual" (BAU).

Now by 2030, things get pretty expensive. That's because by 2030, under Waxman-Markey, there are really no more free allowances. Companies have to pay the full price, whatever the market price is, to emit a ton of CO2. And the targets, as I showed you in that earlier table, are ratcheting down; by 2030, we have to cut emissions 40 percent below the baseline forecast.

So the price of carbon has grown pretty sharply. The price a company has to pay per ton per year has risen to between $123 to $159 dollars a ton. Note that other organizations are also showing higher prices per ton and that the

Department of Energy is showing $191 a ton for what companies would have to pay.

The GDP impacts of these higher energy prices are, again, really rising. Ours show between 1.8 percent and 2.4 percent reduction in GDP compared to the baseline forecast. And you may think 2.4 percent is a small number — who cares, we can spare it. But 2.4 percent of gross domestic product is $600 billion in the year 2030. So GDP would be $600 billion smaller. If the federal government's taking, as it does right now — well, did until last year — 20 percent out of every dollar, the impact on federal tax receipts is a reduction of $120 billion. State governments would lose about $80 billion that year.

Summary of Key Macroeconomic Modeling Results in 2030 for the Waxman-Markey Bill

	U.S. Carbon Allowance Prices (Per Metric Ton in 2007 Dollars)	GDP Impact (Percentage Change from BAU)	Impact on Jobs (Change from BAU)
ACCF/NAM Low-Cost Case	$123	-1.8%	-1,790,000
ACCF/NAM HIgh-Cost Case	$159	-2.4%	-2,440,000
CRA/NBCC	$49	-1.0%	-2,200,000
EIA-NEMS Basic	$65	-0.8%	-597,000
EIA-NEMS Limited	$191	-2.3%	-2,317,000
CBO	N/A	-0.4 to -1.1%	N/A

The graphic shows economic-impact estimates for the year 2030 from the American Council for Capital Formation and the National Association of Manufacturers (ACCF/NAM); Charles Rivers Associates and the National Black Chamber of Commerce (CRA/NBCC); the U.S. Energy Information Administration, using the National Energy Modeling System (EIA-NEMS); and the Congressional Budget Office (CBO). Figures in the second and third columns represent changes from "business as usual" (BAU).

Over the entire 18-year period we modeled, total output falls by between $1.7 trillion and about $3 trillion dollars. So over that 18-year period, we could lose as much as $3 trillion in GDP. And that, of course, has significant implications for living standards, for deficits, for deficit reductions and so forth. So as you can see, the range of estimates that I'm showing you here are all pointing in one direction, even those of the Congressional Budget Office: smaller GDP, smaller impact and lower employment.

Our numbers suggest a reduction in U.S. employment of between 1.7 million jobs and as many as 2.4 million jobs. And of course, the manufacturing sector takes a big hit — and that is detailed in our full study, if you want to break out manufacturing — because it is so energy-intensive and so subject to companies able to relocate their production in China, India or elsewhere.

So those are some of the consequences for the economy as a whole. Let's take a quick look at the impact on Michigan. There is a little two-page report on our website on the specific impacts on Michigan, if you'd like to look at it (www.accf.org/publications/109/accf-nam-study-of-the-economic-impa). But Michigan, being so energy-intensive — cold climate; using coal; a lot of coal for electricity generation — suffers disproportionately more than states do on average. By 2030, gross state product could be between $12 billion and $16 billion lower. And of course that has implications for budget receipts here. Let's say Michigan is taking 10 percent of every dollar of the state product here; then budget receipts could be down $164 million approximately. So it has significant impacts for the ability to fund the activities that citizens in Michigan are interested in.

And by 2030, job loss becomes important here: down between 67,000 to as many as 91,000 fewer jobs that year. Annual household income in real terms could be between $883 and $1,400 smaller if Waxman-Markey were enacted.

Waxman-Markey's Impact on Michigan's Economy in 2020 and 2030 Compared to Baseline Forecast

	Low-Cost Case		High-Cost Case	
	2020	2030	2020	2030
Change in Annual Gross State Product (Millions of 2007 Dollars)	-$1,144	-$12,058	-$1,966	-$16,450
Change in Annual Jobs	+430	-66,660	-2,990	-90,790
Change in Annual Household Income (2007 Dollars)	-$134	-$883	-$264	-$1,435

Energy prices here in Michigan, as is true with other states, would have to rise. That's the purpose of this bill: to make fossil fuel more expensive, so that individuals, factories, businesses and transportation fleets will have to cut back, use less fossil fuel and switch to alternatives.

Gasoline prices would rise by 2030 between 20 percent and 26 percent compared to the baseline. Residential electricity prices would go up by 38 percent to 60 percent, and natural gas prices by as much as 61 percent to almost 80 percent.

Waxman-Markey's Impact on Michigan's Energy Prices in 2025 and 2030 Compared to Baseline Forecast

	Low-Cost Case		High-Cost Case	
	2025	2030	2025	2030
Change in Gasoline Prices	+12%	+20%	+16%	+26%
Change in Residential Electricity Prices	-1%	+38%	-2%	+60%
Change in Residential Natural Gas Prices	+5%	+61%	+11%	+79%

So those are what are going to drive the impacts in a place like Michigan. Manufacturing here would tend by 2030 to be between 5 percent to 7 percent smaller than it otherwise would be. Your transportation sector would be down considerably, and chemical production and other things that you're very good at would be hit because of the extra energy costs and the difficulty of switching to renewable energy.

We modeled the renewable energy standards in the Waxman-Markey bill, as well as the energy efficiency provisions. Even with picking up green jobs, we still overall in the United States lose jobs, because industry becomes less competitive or less productive; we're having to quickly switch the capital stock; we prematurely obsolete our capital stock; and we're substituting more expensive energy for cheaper energy. So it's not a net gain, even when you factor in the fact that there would be additional jobs in what are called "green" sectors.

Now there's another issue that you are probably aware of, and that's whether the Environmental Protection Agency will step in and regulate greenhouse gases if Congress doesn't pass a law that pre-empts them from doing so. Many people in business and municipal governments and so forth are concerned about what the impact might be if we end up with the EPA trying to regulate under the Clean Air Act, which they're preparing to do.

The endangerment finding that was passed in December 2009 provides the legal justification, they believe, for moving ahead with this. They've issued standards recently, as you probably know better than I do, for light-duty vehicles to get combined average CO2 emissions down to 250 grams per mile by 2016. I think right now that the average for those is about 295 or something like that. So it'll require a pretty significant reduction in the next four or five years.

This regulating of greenhouse gases is likely to trigger a permitting requirement for stationary sources — in other words, businesses that are in place, and conceivably, even very large houses, although that's being debated. But certainly many businesses would fall under the tons-per-year requirement. Regulating the stationary sources — factories, bakeries, dry cleaners, etc. — would probably not be accomplished through a cap-and-trade system, as in the Waxman-Markey bill or in the Kerry bill. It would probably be command-and-control regulation requiring the "best available technology."

If a locality couldn't adopt the best available technology to get its emissions down, then they would simply have to shut down various aspects of their businesses. I know municipal governments are worried about that, and of course, construction people, as well as factories, are too. We've tried to get some data that would help us model the cost of the EPA moving forward under that type of

regulatory regime, but we haven't been able to find very much data yet, and companies that may have it are kind of reluctant to release it under the public domain. But we know that it will be very expensive, because in many cases, the technology's simply not there to curb emissions in a cost-effective way.

Regulation of Greenhouse Gases Under the Clean Air Act

- EPA is preparing to regulate greenhouse gases under the Clean Air Act.
- The "Endangerment Finding" in December 2009 provides justification for regulation of new light-duty motor vehicles.
- EPA's new greenhouse gas emission standards for light-duty vehicles require that they meet a combined average of 250 grams per mile by 2016.
- Regulating greenhouse gases for vehicles is likely to trigger permitting requirements for greenhouse gases from stationary sources in 2011.
- Stationary source regulation would likely be accomplished through command-and-control mandates such as "best available control technology" rather than cap-and-trade or carbon taxes.
- Cost is unknown but likely very substantial.

The EPA estimates that over 6 million large and small facilities would need to apply for pre-construction and operating permits if the EPA sets greenhouse gas thresholds at 100 tons to 250 tons per year. They proposed what's called the "tailoring rule" in October, which would temporarily raise the permitting requirement to facilities that emit 25,000 tons per year or more, which of course, helps reduce the number of firms covered. But still, millions of firms would be covered by even that. Some of these firms would be small. The Small Business Administration's Office of Advocacy found that some 1,200 small facilities, like brick manufacturers, foundries, municipal utilities, refineries and so forth, would have to get these Title V permits even under the tailoring rule. The EPA estimates that the cost of each of these permits for a small firm could range between roughly $45,000 and $85,000.

Who Would Be Affected by EPA Regulations?

- EPA estimates that over 6 million large and small facilities would need to apply for preconstruction and operating permits if greenhouse gas threshold levels remain at 100 to 250 tons per year.
- The "Tailoring Rule," proposed in October 2009, would temporarily raise the greenhouse gas permitting level to 25,000 tons per year.
- Initially, permits would be required only for new construction or improvements.
- Small Business Administration's Office of Advocacy found that some 1,200 small entities like brick manufacturers, foundries, municipal utilities and refineries would have to obtain Title V permits even with Tailoring Rule.
- EPA estimates cost of permits for Title V is $45,350 and $84,530 for Prevention of Significant Deterioration permits.
- States including California, South Carolina, Kansas, Pennsylvania and Florida have called on EPA to delay emission rules, and Texas, Alabama and Virginia have filed suits.
- Bipartisan, bicameral support for blocking EPA rules.

Some states have begun to push back: California, South Carolina, Kansas and Pennsylvania have called on the EPA to delay these rules. In fact, Texas, Alabama and Virginia have filed suits to prevent the EPA from moving forward, because they see it as such a job killer and such an impediment to economic recovery. In the U.S. House and Senate in Washington, there seems to be bicameral support for pulling the EPA back on this. There've been bills introduced with bipartisan support in both houses to try to slow this down. So the threat of the EPA regulating under the Clean Air Act has been used as kind of a sword over the head of Congress and the business community to try to get them to push ahead and adopt a mandatory carbon emission reduction scheme, to legislate it.

Now, getting back to the global perspective, we see what's in front of us here in Washington. We see of course many states are also engaged in trying to regulate greenhouse gases too, but let's get back and look at this issue globally and see what policies might make sense for the United States. As you can see from this slide, U.S. greenhouse gas emissions are projected to be pretty much flat between

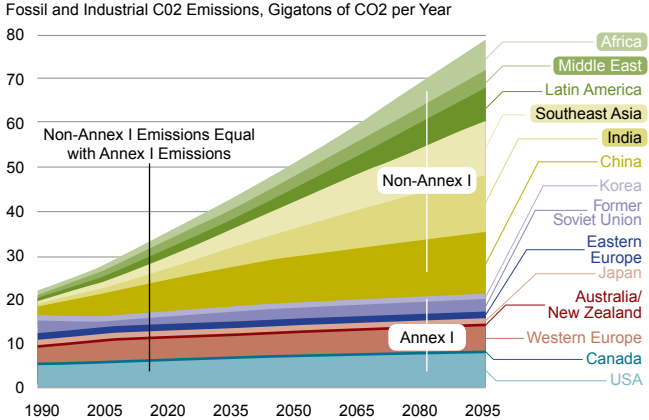
now and the year 2095. This is from the Battelle Memorial Institute, a nonprofit science and technology company. And Canada appears directly above the United States on the chart. Europe is pretty much flat.

The growth of emissions is coming, as you probably very well know, from places like China, India, Korea, Southeast Asia, the Middle East and Africa. China's emissions are growing at 10 percent a year. And their emissions already exceed those of the United States They're opening one coal-fired plant every week in China; their emissions are growing very sharply.

So as Lisa Jackson, the EPA administrator, testified last fall before the Senate Energy Committee, even if the United States were to adopt legislation like the Waxman-Markey bill or the Kerry bill, by the end of this century, it will make virtually no difference.

Cumulative World Carbon Dioxide Emissions

Fossil and Industrial C02 Emissions, Gigatons of CO2 per Year

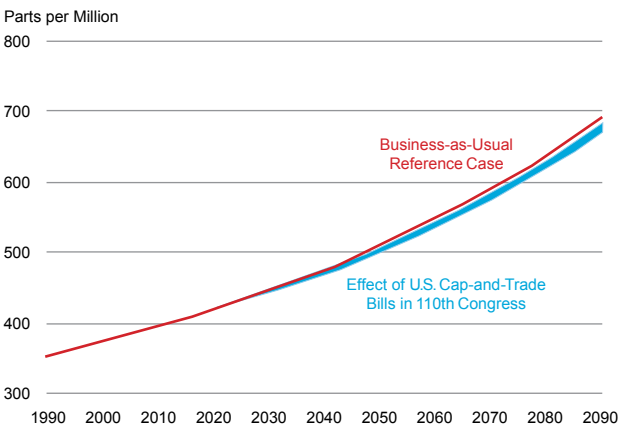


Source: Data derived from "Global Energy Technology Strategy, Addressing Climate Change: Phase 2 Findings from an International Public-Private Sponsored Research Program," Battelle Memorial Institute, 2007. "Annex 1" countries are nominally covered by the Kyoto Protocol.

I took the next chart from a February 2009 president's economic report, Obama's first economic report. It shows that the trend for global emissions and global concentrations is rising from about 340 or so parts per million, and if changes are not made in global production, the curve shows

that concentrations of CO2 in the atmosphere will be at approximately 700 parts per million by the end of this century. If we adopt the Waxman-Markey Bill or similar legislation we'll be at about 697 parts per million. So that blue curve shows the difference that would be made by adoption of the legislation.

Global CO2 Concentrations: Carbon Emissions Are Projected to Rise Over the Next Several Decades



Source: Economic Report of the President, January 2009

Lisa Jackson testified to that last September or October, so the administration understands that if we were to adopt this type of legislation, it isn't going to make much difference in terms of concentrations in the atmosphere by the end of this century. The growth in emissions is not here — it's coming from developing countries.

Given that, I think we need to think about more cost-effective ways to move forward on climate change. I take it as a serious issue; I don't question the science. I think we probably do want to slow greenhouse gas emission growth, but we need to think about how to do it cost-effectively. We need to use cost-benefit analysis as we evaluate these policies and figure what is the cost to society — to the economy, to job growth — to Michigan — and what are the benefits.

First, I think we need a careful look at what the legislation might mean for our economy. And if we do decide that we as a society want to put a price on carbon and try to accelerate the increase in energy efficiency that we have already seen here in the United States in the last decade — we get more energy-efficient every year in terms of emitting less CO2 per year per dollar of output — a tax on carbon emissions that might start low, then slowly ratchet up, might be a better approach than cap-and-trade, because it would give companies and households time to make the changes in their capital stock that would need to be made. A company could decide, "In five years, I'll change this piece of equipment — its useful life will be up, and I'll just pay the tax between now and then." So a carbon tax could generate revenue for the government to pay down the deficit or whatever other social goal was important to it and would tend to minimize the fraud and waste and gaming of the system that would most likely occur under carbon cap-and-trade.

We also need to look at reducing the cost of energy investments here in the United States. We did an analysis with Ernst & Young two years ago, and this is up on our website under the "tax policy" button. We looked at depreciation allowances and corporate tax rates in 10 of our major trading partners, including China, India, Germany, France, Canada, Malaysia and so forth, and we found that we have the highest effective tax rate on new energy investments — whether it's for electricity production, combined heat and power, pollution control or refining — because we have the slowest depreciation and the highest corporate tax rate.

The cost of investing here in the United States is much higher than in other countries because they've geared their tax system to make the cost of capital lower and make investment more attractive. As the Obama administration starts to talk about tax reform, we could hope to see some improvements for business investment.

We need to remove the barriers from the developing world's getting access to cleaner, lower-emissions technology. In general, China emits about three times more CO2 per dollar of output than we do, and India also. We need to increase research and development for new technologies that will capture and store carbon; develop new energy sources; and make renewables more cost-effective. We need to promote nuclear power for electricity generation, at least in the short run, until other, possibly better solutions come along.

We also need to continue to work with our partners around the world through initiatives like the Asia-Pacific Partnership, which was started under the previous administration, and which has morphed into the Major Economies Initiative, which has the 17 countries that produce 85 percent of all greenhouse gas emissions globally. They work together on cement production, coal mining, electricity production, steel production and renewable energy. For example, the company Caterpillar has done a deal with the Chinese government to capture methane at 60 Chinese coal plants and then turn that into electricity. So they're capturing and sequestering this methane, which

Practical Strategies for Reducing Global Greenhouse Gas Growth

- Use cost-benefit analysis before adopting policies.
- If the United States puts a price on carbon emissions, a carbon tax is preferable to cap-and-trade system.
- Reduce cost of U.S. energy investment through tax code improvement and incentives for nonprofits.
- Remove barriers to developing world's access to more energy and cleaner technology by promoting market reforms.
- Increase R&D for new technologies to reduce energy intensity, capture and store carbon, and develop new energy sources.
- Promote nuclear power for electricity.
- Promote truly global solutions and consider expanding the Asia-Pacific Partnership on Development with its focus on economic growth and technology transfer to other major emitters.

has very high global warming potential, and doing good for the environment and making money for Caterpillar. These kinds of initiatives should be encouraged as we move toward slowly figuring out how to slow global greenhouse gas emissions.

=END=

Dr. Margo Thorning is a senior vice president and chief economist for the American Council for Capital Formation in Washington, D.C.

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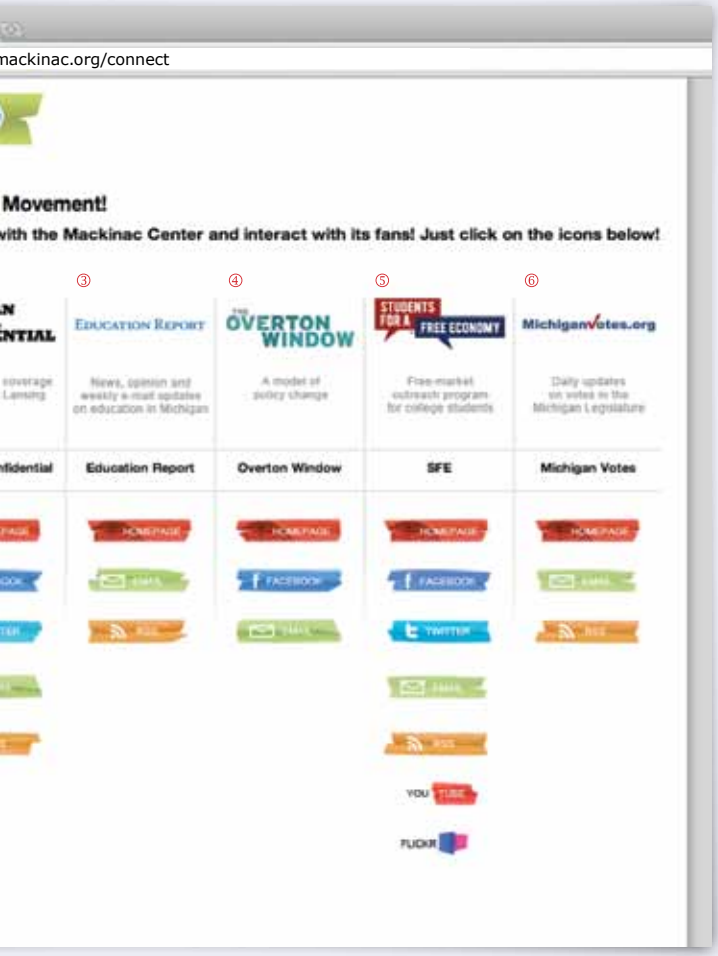

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